Emotion Recognition Techniques and Tools: A Review

PSM de Silva, B Hettige

Department of Computer Engineering, Faculty of Computing, General Sir John Kotelawala Defence University, Ratmalana, Sri Lanka

Abstract. Human Emotion plays a vital role in many intelligent systems in the modern day. Emotions can be termed as psychological states that are expressed through various facial expressions. Humans experience a variety of emotions such as happiness, anger, sadness, and fear. Every one of these emotions can be identified by its own unique facial expression. It is these varied and distinct facial expressions that act as the focal point in emotion recognition systems. Emotion recognition systems can aid in many different fields and ensure that the psychological well-being of individuals is being taken into consideration when providing certain services. These systems usually involve obtaining a facial image from the user depicting the user's facial expression. Afterward, this image is subjected to segmentation and pre-processing in order to extract the features of the facial expression. Feature Classification is then carried out to identify the emotion that corresponds to the previously extracted features. Many different emotion recognition systems are already in existence for a variety of reasons. Each of these systems use a range of different techniques and tools. Commonly found examples of such techniques and tools would be Neural Networks, Learning Algorithms, Support Vector Machine Classifications and Bezier Curves. All these different types of techniques and tools hold merit, though some may work more efficiently and more accurately than others. The objective of this paper is to review the different Emotion Recognition Techniques and Tools available in previously developed systems, and to carry out an analysis on their respective advantages and disadvantages.

Keywords: *Emotion Recognition, Artificial Intelligence, Image Processing Neural Networks, Support Vector Machine, Bezier Curve*